

IN THE CLAIMS

The following provides the listing of the claims, as previously presented and currently pending in the present application.

1. (Currently amended) A lead-acid electric battery having a plurality of cells each holding a liquid electrolyte, said liquid electrolyte having a free surface indicative of the level of said liquid electrolyte in each of said cells, said battery being connectable to a water source for replenishing water in said cells, said battery comprising:

a water conduit attached to said battery and capable of being connected in fluid communication with said water source, said water conduit being in fluid communication with each of said cells;

a valve system operatively associated with said water conduit for controlling water flow from said water source, through said water conduit and to said cells;

an electrolyte level sensor attached to at least one of said cells for sensing the location of said free surface within said at least one cell, said level sensor capable of generating an electronic signal indicative of an amount of electrolyte in at least one of said cells based upon the location of said free surface within said at least one cell; ~~and~~

an electronic controller attached to said battery and in communication with said electrolyte level sensor and said valve system, said controller controlling said valve system to allow water to flow to said cells in response to a signal from said level sensor indicative of a deficient amount of electrolyte in said cells, and preventing water flow to said cells in response a signal from said level sensor indicative of a sufficient amount of electrolyte in said cells; and

said battery being autonomous such that said water conduit, valve system, electrolyte level sensor, and electronic controller are integral with said battery so as to form a self contained battery.

2. (Previously Presented) An electric battery according to Claim 1, wherein said valve system comprises:

a conduit valve positioned in said water conduit to control water flow from said water source to said cells, said conduit valve being in communication with and under the control of said electronic controller for opening and closing thereof;

a plurality of cell valves, one of said cell valves being positioned in each of said cells for controlling water flow from said water conduit to each of said cells.

3. (Previously Presented) An electric battery according to Claim 2, wherein each of said cell valves comprises a valve member responsive to a level of water in each said cell to effect opening of said cell valve when said amount of water is less than a first predetermined amount, and closing of said cell valve when said amount of water is greater than a second predetermined amount.

4. (Previously Presented) An electric battery according to Claim 2, wherein said electronic controller comprises a microprocessor.

5. (Original) An electric battery according to Claim 4, wherein said conduit valve is electrically openable and closable by said microprocessor.

6. (Currently Amended) An electric battery according to Claim 1, wherein said water source has a fitting connectable to said water conduit through a coupling attached to and integral with said battery, said coupling comprising:

a biasing member positioned between said coupling and said fitting for ejecting said fitting away from and out of engagement with said coupling; and

a latch movable between a first position engaging and holding said fitting in engagement with said coupling against said biasing member, and a second position releasing said fitting from engagement with said coupling, said latch being actuated between said first and second positions by said electronic controller.

7. (Original) An electric battery according to Claim 6, wherein said latch is electrically actuatable between said positions.

8. (Original) An electric battery according to Claim 6, wherein said latch comprises a sensor adapted to generate signals indicative of engagement and disengagement of said fitting with said coupling, said sensor being in communication with said controller.

9 and 10. (Canceled)

11. (Currently Amended) An electric battery according to Claim 1, further including:
a charging sensor capable of generating an electronic signal indicating when said battery is being charged, said charging sensor being in communication with said controller; ~~and~~
an air pump in fluid communication with said cells, said air pump being in communication with and controlled by said controller and pumping air into said cells to promote mixing of said fluid therein and thereby prevent acid stratification during charging; and
said charging sensor and said air pump being integral with said self contained battery.

12. (Original) An electric battery according to Claim 11, wherein said charging sensor comprises a Hall Effect device mounted on said battery for measuring flow of electrical current to said battery indicative of charging.

13. (Original) An electric battery according to Claim 11, wherein said charging sensor comprises an electrical shunt device mounted on said battery for measuring flow of electrical current to said battery indicative of charging.

14. (Original) An electric battery according to Claim 11, further comprising an air conduit fixed to said battery and extending to each of said cells, said air conduit providing fluid communication between said air pump and said cells.

15-31. (Canceled)

32. (Currently Amended) A method of replenishing water to cells of a lead-acid electric battery from a water source, said method comprising the steps of:

providing a water conduit attached to said battery, said conduit being in fluid communication with each of said cells;

providing a conduit valve positioned in said water conduit to control water flow from said water source to said cells;

providing a plurality of cell valves, one of said cell valves being positioned in each of said cells for controlling water flow from said water conduit to each of said cells, each of said cell valves comprising a valve member responsive to a level of water in each said cell to effect opening of said cell valve when said amount of water is less than a first predetermined amount, and closing of said cell valve when said amount of water is greater than a second predetermined amount;

providing at least one electrolyte level sensor attached to at least one of said cells;

providing an electronic controller attached to said battery, said electronic controller being in communication with said electrolyte level sensor and said conduit valve, wherein said battery is autonomous such that said water conduit, cell valves, electrolyte level sensor, and electronic controller are integral with said battery so as to form a self contained battery;

connecting said water conduit to a said water source;

sensing when a level of said electrolyte in said one cell is low using said electrolyte level sensor;

sending a signal from said electrolyte level sensor to said controller indicative of the level of said electrolyte in said one cell;

opening said conduit valve to allowing water to flow from said water source to each of said cells through said water conduit; and

halting flow of said water to each of said cells using said valve members responsive to said level of water in each said cell by closing of said cell valves when said amount of water in each said cell is greater than said second predetermined amount.

33. (Canceled)

34. (Currently Amended) A lead-acid electric autonomous battery having a plurality of cells, said battery being connectable to a water source for replenishing water in said cells, said battery comprising:

a water conduit attached to said battery and capable of being connected in fluid communication with said water source, said water conduit being in fluid communication with each of said cells;

a conduit valve positioned in said water conduit to control water flow from said water source to said cells;

a plurality of cell valves, one of said cell valves being positioned in each of said cells for controlling water flow from said water conduit to each of said cells, each of said cell valves comprising a valve member responsive to a level of water in each said cell to effect opening of said cell valve when said amount of water is less than a first predetermined amount, and closing of said cell valve when said amount of water is greater than a second predetermined amount;

an electrolyte level sensor attached to at least one of said cells capable of generating an electronic signal indicative of an amount of electrolyte in at least one of said cells; ~~and~~

an electronic controller attached to said battery and in communication with said electrolyte level sensor and said conduit valve, said controller controlling said conduit valve to allow water to flow to said cells in response to a signal from said level sensor indicative of a deficient amount of electrolyte in said cells, and preventing water flow to said cells in response a signal from said level sensor indicative of a sufficient amount of electrolyte in said cells; and

wherein said water conduit, conduit valve, cell valves, electrolyte level sensor, and electronic controller are integral with said battery so as to form a self contained battery.

35. (New) An electric battery according to Claim 2 wherein said plurality of cell valves comprises mechanical valves.

36. (New) An electric battery according to Claim 2 wherein said plurality of cell valves comprises mechanical float valves.

37. (New) An electric battery according to Claim 34 wherein said plurality of cell valves comprises mechanical valves.

38. (New) An electric battery according to Claim 37 wherein said mechanical valves comprise float valves.